



# AFCTN Test Report 94-046

AFCTB-ID  
93-096



## Technical Raster Transfer

Using:



HQ ASC/AMIS' Data

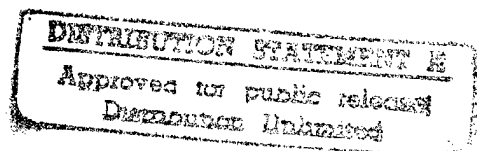


MIL-R-28002A (Raster)



Quick Short Test Report

29 October 1993



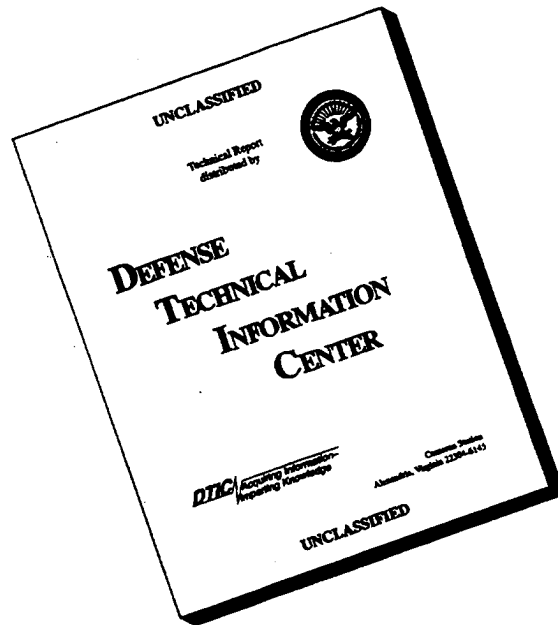
19960822 177



Prepared for  
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## 1. Introduction

### 1.1 Background

The Department of Defense (DoD) Air Force Continuous Acquisition and Life-cycle Support (CALS) Test Network (AFCTN) is conducting tests of the military standard for the Automated Interchange of Technical Information, MIL-STD-1840A, and its companion suite of military specifications. The AFCTN is a DoD sponsored confederation of voluntary participants from industry and government managed by the Electronic Systems Center (ESC).

The primary objective of the AFCTN is to evaluate the effectiveness of the CALS standards for technical data interchange and to demonstrate the technical capabilities and operational suitability of those standards. Two general categories of tests are performed to evaluate the standards; formal and informal.

Formal tests are large and comprehensive, which follow a written test plan, require specific authorization from the DoD, and may take months to prepare, execute, and report.

Informal tests are quick and short, used by the AFCTN technical staff, to broaden the testing base. They include representative samples of the many systems and applications used by AFCTN participants. They also allow the AFCTN staff to gain feedback from many industry and government interpretations of the standards, to increase the base of participation in the CALS initiative, and respond to the many requests for help that come from participants. Participants take part voluntarily, benefit by receiving an evaluation of their latest implementation (interpretation) of the standards, interact with the AFCTN technical staff, gain experience using the standards, and develop increased confidence in them. The results of informal tests are reported in Quick Short Test Reports (QSTRs) that briefly summarize the standard(s) tested, the hardware and software used, the nature of the test, and the results.

## 1.2 Purpose

The purpose of the informal test, reported in this QSTR, was to analyze HQ ASC/AMIS' interpretation and use of the CALS standards in transferring technical Raster data. ASC/AMIS used its CALS Technical Data Interchange System to produce data, in accordance with the standards, and delivered it to the AFCTN technical staff on a 9-track magnetic tape.

## 2. Test Parameters

Test Plan: AFCTB 93-096

Date of  
Evaluation: 29 October 1993

Evaluator: George Elwood  
Air Force CALS Test Bed  
Det 2 HQ ESC/ENCP  
4027 Colonel Glenn Hwy  
Suite 300  
Dayton OH 45431-1672

Data  
Originator: Diane Sontergelt  
HQ ASC/AMIS  
Wright-Patterson AFB OH 45433  
(513) 257-9745

Data  
Description: Technical Raster Test  
3 Document Declaration file  
3 Raster files

Data  
Source System: 1840  
HARDWARE Unknown  
SOFTWARE Unknown  
Raster  
HARDWARE Unknown  
SOFTWARE Unknown

**Evaluation Tools Used:**

**MIL-STD-1840A (TAPE)**

SUN 3/280

AFCTN Tapetool v1.2.10 UNIX

XSoft CAPS/CALS v40.4

PC 486/50

AFCTN Tapetool v1.2.10 DOS

**MIL-R-28002 (Raster)**

SUN SparcStation 2

ArborText g42tiff

Carberry CADLeaf Plus v3.1

AFCTN validg4

AFCTN Xrastb.sun4

IGES Data Analysis (IDA) IGESView v3.0

Island Graphics IslandPaint v3.0

SGI Indigo2

AFCTN Xrastb.sgi

PC 486/50

IDA IGESView Windows

Inset Systems HiJaak Window Pro

Expert Graphics RxHighlight v1.0

**Standards**

**Tested:**

MIL-STD-1840A

MIL-R-28002A

### **3. 1840A Analysis**

#### **3.1 External Packaging**

The tape was hand delivered to the Air Force CALS Test Bed (AFCTB), it was not enclosed in a box in accordance with ASTM D 3951.

The tape was not enclosed in a barrier bag or barrier sheet material, as required by MIL-STD-1840A, para. 5.3.1.2. Inspection of the tape reel showed the label indicating the recording density, as required by MIL-STD-1840A, para. 5.3.1. A packing list showing all files recorded on the tape was not enclosed.

#### **3.2 Transmission Envelope**

The 9-track tape received by the AFCTB contained MIL-STD-1840A files. The files were named per the standard conventions.

##### **3.2.1 Tape Formats**

The tape was run through the AFCTN *Tapetool* v1.2.10 utility. No errors were reported while evaluating the contents of the tape labels. However, four notes were reported.

Three of the notes reported an "incomplete last block" in each of the Document Declaration files. No data was lost, but it could be lost with some systems. The block should be padded with the space character to prevent this problem.

\*\*\* NOTE - Last block was incomplete. Short blocks are prone to be interpreted as noise by some tape drives. Tape Label => 2048, Actual => 396, Block Number => 1

The fourth note commented on the "Label Statement Version" used on the tape. Although MIL-STD-1840A permits the use of either version three or four, the most current standard should be used and noted.

A complete log of the notes are shown in Appendix A, Section 9.2 of this report.

The tape Document Declaration files were read by the XSoft CAPS *read1840A* utility. Warning messages, "Declaration file indicates 0 Raster files, but tape contains 1 Raster files," for each of the three files. See Appendix A, Section 9.4, of the Tape Reading Logs. This "filcnt" record in each file declaration contained an "r1" to designate one Raster file. The utility looks for an upper case "R" for Raster file counts. While MIL-STD-1840A does not specifically say upper case letters must be used, the examples in para. 5.1.1.2 and 5.1.2 show upper case letters.

No other errors were reported by the AFCTN *Tapetool* program.

### **3.2.2 Declaration and Header Fields**

No errors were reported in the Document Declaration files and data file headers. However, the use of lower case letters in the "filcnt" field on the Declaration files is incorrect. See the comments in paragraph 3.2.1 above. The AFCTN *Tapetool* did not report this error and will be corrected in the next release.

Because of the lower case letters in the "filcnt" record, this portion of the tape does not meet the CALS MIL-STD-1840A requirements.

## **4. IGES Analysis**

The tape contained no Initial Graphic Exchange Specification (IGES) files.

## **5. SGML Analysis**

The tape contained no Standard Generalized Markup Language (SGML) files.

## 6. Raster Analysis

The tape contained three Raster files. All files were evaluated using the AFCTN *validg4* utility. This program reported that all three files meet the CALS MIL-R-28002A specification.

The files were read into the AFCTN *Xrastb* viewing utility. No problems were noted. The images appeared to be straight with no orphan pixels. The images were excellent quality.

The AFCTB has several tools for viewing Raster files. These tools are not used to generate a pass/fail but to report how commercially available software can handle the files. Many of these products are used in the development of technical publications and are good indicators of usability. The use of these products is not an endorsement nor an indication of CALS capability. All operations were performed using the default settings.

The files were converted using ArborText's *g42tiff* utility without a reported error. The resulting files were read into Island Graphics' *IslandPaint* and displayed.

The Raster files were read into Carberry's *CADLeaf* software without a reported error and were displayed.

The files were read into IDA's *IGESView* and *IGESView for Windows* without a reported error and printed.

The files were read into Inset Systems' *HiJaak for Windows* and displayed without a reported error.

The Raster files were converted using Rosetta Technologies' *Prepare* without a reported error. The resulting files were read into *Preview* and displayed.

The Raster files were imported into Expert Graphics' *Rx-Highlight* and displayed without a reported error.

The Raster files meet the CALS MIL-R-28002A specification.

## 7. CGM Analysis

The tape contained no Computer Graphics Metafile (CGM) files.

---

## 8. Conclusions and Recommendations

The tape from HQ ASC/AMIS had an error in the Document Declaration file. The use of lower case letters in the Document Declaration file "filcnt" record, as reported by the XSoft software, is inconsistent with the examples MIL-STD-1840A contained. The physical structure of this tape does not meet the CALS MIL-STD-1840A requirements for this reason.

The Raster files meet the CALS MIL-R-28002A specification.

Because of the minor error in the Document Declaration files, the tape does not meet the CALS MIL-STD-1840A requirements.

## 9. Appendix A - Tapetool Report Logs

### 9.1 Tape Catalog

CALS Test Network Catalog Evaluation - Version 1.2; Release 10 (C)

Standards referenced:

MIL-STD-1840A (1987) - Automated Interchange of Technical Information

ANSI X3.27 (1987) - File Structure and labeling of Magnetic Tapes  
for Information Interchange

ANSI X3.4 (1986) - Coded Character Sets - 7 Bit ASCII

Thu Oct 28 15:20:15 1993

MIL-STD-1840A File Catalog

File Set Directory: /cals/u1210/Set030

Page:  
1

File Name Extracted	File Type	Record Format/ Selected/ Length	Block Length/Total
---			
D001 Extracted	Document Declaration	D/00260	02048/000001
D002 Extracted	Document Declaration	D/00260	02048/000001
D003 Extracted	Document Declaration	D/00260	02048/000001
D001R001 Extracted	Raster	F/00128	02048/000057
D002R001 Extracted	Raster	F/00128	02048/000025
D003R001 Extracted	Raster	F/00128	02048/000049

Catalog Process terminated normally.

## 9.2 Tape Evaluation Log

CALS Test Network Tape Evaluation - Version 1.2; Release 10 (C)

Standards referenced:

ANSI X3.27 (1987) - File Structure and labeling of Magnetic Tapes  
for Information Interchange

ANSI X3.4 (1986) - Coded Character Sets - 7 Bit ASCII

Thu Oct 28 15:20:07 1993

ANSI Tape Import Log

Allocating tape drive /dev/rmt0...

/dev/rmt0 allocated.

VOL1TAPE01

SONDERGD

3

Label Identifier: VOL1  
Volume Identifier: TAPE01  
Volume Accessibility:  
Owner Identifier: SONDERGD  
Label Standard Version: 3

\*\*\* NOTE (ANSI X3.27; 8.3.1.8) - The Label Standard Version  
should be 4 to represent the current level of ANSI X3.27.

HDR1D001

TAPE0100010001000100 93298 93298 000000UNIXTAPEV2.0

Label Identifier: HDR1  
File Identifier: D001  
File Set Identifier: TAPE01  
File Section Number: 0001  
File Sequence Number: 0001  
Generation Number: 0001  
Generation Version Number: 00  
Creation Date: 93298  
Expiration Date: 93298  
File Accessibility:  
Block Count: 000000  
Implementation Identifier: UNIXTAPEV2.0

HDR2D020480026000SONDERGD//USR/BIN

B

00

Label Identifier: HDR2  
Recording Format: D  
Block Length: 02048

Record Length: 00260  
Offset Length: 00

\*\*\*\*\* Tape Mark \*\*\*\*\*

Actual Block Size Found = 396 Bytes.

\*\*\* NOTE - Last block was incomplete. Short blocks are  
proned to be interpreted as noise by some tape drives.  
Tape Label => 2048, Actual => 396, Block Number => 1

Number of data blocks read = 1.

\*\*\*\*\* Tape Mark \*\*\*\*\*

<<<<< PART OF LOG FILE REMOVED HERE >>>>>

\*\*\*\*\* Tape Mark \*\*\*\*\*

##### End of Volume TAPE01 #####

##### End Of Tape File Set #####

Deallocating /dev/rmt0...

Tape Import Process terminated with 0 error(s), 0 warning(s),  
and 4 note(s).

## 9.3 Tape File Set Validation Log

CALS Test Network File Set Evaluation - Version 1.2; Release 10 (C)

Standards referenced:

MIL-STD-1840A (1987) - Automated Interchange of Technical Information

Thu Oct 28 15:20:15 1993

MIL-STD-1840A File Set Evaluation Log

File Set: Set030

Found file: D001

Extracting Document Declaration Header Records...

Evaluating Document Declaration Header Records...

srcsys: Intergraph at DMMF, WPAFB OH

srcdocid: X92D127595, Sht 1

srcrelid: NONE

chglvl: ORIGINAL

dteisu: 19931025

dstsys: EDCARS, OO-PKDE, HAFB UT

dstdocid: X92D127595, Sht 1

dstrelid: NONE

dtetrn: 19931026

dlvacc: NONE

filcnt: r1

ttlcls: Unclassified

doccls: Unclassified

doctyp: Wiring Diagram

docttl: Wiring Diagram, TFE-25 28vDC Power and Control

Found file: D001R001

Extracting Raster Header Records...

Evaluating Raster Header Records...

srcdocid: X92D127595

07878

00010001UMEHU

001D

dstdocid: X92D127595, Sht1

txtfilid: NONE

figid: NONE

srcgph: NONE

doccls: Unclass

rtype: 1

rorient: 090,270

rpelcnt: 004416,006916

rdensty: 0200

notes: NONE

Saving Raster Header File: D001R001\_HDR  
Saving Raster Data File: D001R001\_GR4

Evaluating numbering scheme...  
No errors were encountered during numbering scheme evaluation.  
Numbering scheme evaluation complete.

Checking file count...  
No errors were encountered during file count verification.  
File Count verification complete.

No errors were encountered in Document D001.

<<<<< PART OF THE LOG REMNOVED HERE >>>>>

No errors were encountered in Document D002.

<<<<< PART OF THE LOG REMNOVED HERE >>>>>

Evaluating numbering scheme...  
No errors were encountered during numbering scheme evaluation.  
Numbering scheme evaluation complete.

Checking file count...  
No errors were encountered during file count verification.  
File Count verification complete.

No errors were encountered in Document D003.

No errors were encountered in this File Set.

MIL-STD-1840A File Set Evaluation Complete.

## 9.4 Other Tape Reading Logs

```
/cals/caps/Bin/read1840A: --- Read declaration file 'D001    ' ---
/cals/caps/Bin/read1840A: --- Read declaration file 'D002    ' ---
/cals/caps/Bin/read1840A: --- Read declaration file 'D003    ' ---
/cals/caps/Bin/read1840A: writing data file
'aftb9396/X92D127595Sht1/X92D127595Sht11.R.cci'.
-- declaration file indicates 0 files of type T
-- declaration file indicates 0 files of type G
-- declaration file indicates 0 files of type P <<<< PART OF LOG FILE
      REMOVED HERE >>>>
*** WARNING: Declaration file indicates 0 Raster files, but tape contains 1
files.
/cals/caps/Bin/read1840A: writing data file
'aftb9396/X92D127595Sht2/X92D127595Sht21.R.cci'.
-  declaration file indicates 0 files of type T
-- declaration file indicates 0 files of type G
      <<<< PART OF LOG FILE REMOVED HERE >>>>
*** WARNING: Declaration file indicates 0 Raster files, but tape contains 1
files.
/cals/caps/Bin/read1840A: writing data file
'aftb9396/X92D127597Sht1/X92D127597Sht11.R.cci'.
-- declaration file indicates 0 files of type T
-- declaration file indicates 0 files of type G <<<< PART OF LOG FILE
      REMOVED HERE >>>>
*** WARNING: Declaration file indicates 0 Raster files, but tape contains 1
files.
```

---



### 10.2.1 Output IGESView



### 10.3.1 Output IGESView

